

# Transforming Diri's Contact Center with Agentic AI, Amazon Bedrock and Amazon Connect

## Executive Summary

Nova implemented a sophisticated AI-powered contact center solution for Diri Telecomunicaciones a leading Mexican Mobile Virtual Network Operator (MVNO) to resolve critical operational bottlenecks and enhance customer service.

By integrating Amazon Bedrock Knowledge Bases, Amazon Connect, and Amazon Lex, the solution delivers intelligent, multi-channel support across voice and WhatsApp.

Utilizing a serverless AI architecture and Retrieval-Augmented Generation (RAG), the platform provides 24/7 automated assistance with seamless human handoff based on real-time sentiment analysis.

### Key outcomes include:

- **Drastic Wait Time Reduction:** Customer wait times decreased from a baseline of 43–80 minutes to near-immediate attention.
- **Enhanced Agent Productivity:** Human agents receive real-time AI assistance through a specialized workspace widget, accelerating query resolution.
- **Multi-Brand Customization:** The system provides tailored, brand-specific interactions for Diri, Pillofon, and Turbocel using distinct system prompts.
- **Operational Efficiency:** The serverless design ensures a scalable, high-availability platform that optimizes costs by automatically adjusting to call volumes.
- **24/7 Intelligent Support:** Automated responses with seamless human handoff.

The serverless AI architecture transforms traditional contact center operations into an intelligent, scalable customer service platform that delivers exceptional customer experiences while maximizing operational performance.

## The Challenge

Diri Telecomunicaciones, a leading MVNO operating in Mexico, Colombia, and Peru with a team of 37 contact center agents, reached a critical point where its existing customer support infrastructure could no longer sustain its international growth. The company's Amazon Connect environment, which managed approximately 80 distinct production flows, suffered from severe operational bottlenecks that directly impaired customer satisfaction and organizational efficiency.

### About Costumer



Figure 1 – Diri Logo

**Diri** Telecomunicaciones is a Mexican company that operates as a Mobile Virtual Network Operator (MVNO).

## Why AWS?

Nova recommended Amazon Web Services (AWS) to Diri Telecomunicaciones primarily to maximize the value of their existing Amazon Connect infrastructure while introducing advanced Agentic AI capabilities that were previously unattainable within their static flow environment

The selection of AWS was driven by the following Agentic AI services and strategic advantages:

**Native Integration with Amazon Connect:** AWS is the only provider offering a seamless, deep integration of generative and agentic workloads directly into Diri's 80 existing production flows and the Agent Workspace (CCP).

**Agentic Orchestration with Strands SDK and AWS Lambda:** Diri utilized AWS Lambda to host the Strands Agent SDK, which serves as the "core intelligence layer" of the solution.

This enables autonomous planning, multi-brand orchestration, and sentiment-driven decision-making—key.

**Enterprise-Grade Inference via Amazon Bedrock:** Bedrock provided Diri with instant access to high-performing foundation models like Anthropic Claude 3.5 Sonnet (for complex agent reasoning) and Amazon Nova Micro (for low-latency customer responses).

**Sophisticated RAG Architecture:** By leveraging Amazon Bedrock Knowledge Bases and Amazon OpenSearch Serverless, Nova implemented a high-availability, multi-brand retrieval system.

This allows the agents to autonomously fetch brand-specific policies and technical data in Spanish to resolve queries in real-time.

**Serverless Scalability and Security:** The entire solution utilizes AWS managed compute (Lambda) and managed storage (S3), ensuring that the platform scales automatically with call volume while maintaining strict security through IAM roles and AWS Secrets Manager for credential governance.

By leveraging this integrated suite of services, Diri has evolved its contact center into a leading-edge intelligent platform, ensuring 24/7 autonomous operations across Mexico, Colombia, and Peru.

## The Solution

Nova implemented a production-ready Agentic AI solution specifically designed to augment and enhance Diri Telecomunicaciones' pre-existing Amazon Connect infrastructure. Rather than a total replacement, Nova's strategy focused on a seamless integration that preserved Diri's existing investment while introducing advanced automation

### 1. Agentic Core Intelligence (Strands SDK)

The heart of the solution is a specialized AWS Lambda function that hosts the Strands Agent SDK, acting as the "core intelligence engine". Unlike traditional scripted chatbots, this agentic layer enables:

**Autonomous Planning and Reasoning:** The agent determines the appropriate course of action dynamically based on natural language processing.

**Tool Execution:** The system can autonomously trigger tools for customer validation and backend integrations (such as line status checks) to resolve queries without human intervention.

**Brand-Specific Orchestration:** The agent uses distinct system prompts to maintain the unique business logic and "voice" for the Diri, Pillofon, and Turbocel brands.

**For Customers (Caller Flow):** Nova Micro ensures ultra-low latency when handling routine FAQs and basic plan inquiries.

### "Amazon Bedrock."

By leveraging Amazon Bedrock's advanced Agent AI capabilities, including its Knowledge Bases for long-term memory management and integration of high-reasoning foundation models, the Nova team implemented a centralized intelligence engine using the Strands Agent SDK.



Figure 2 – Amazon Bedrock Service

### 2. Dual-Model RAG Strategy

The solution leverages Amazon Bedrock Knowledge Bases, which utilize Amazon S3 buckets as the centralized repository for indexing technical manuals and brand policies. This data is integrated with Amazon OpenSearch Serverless (deployed in a Multi-AZ configuration) to provide a high-performance.

The knowledge base processes multimodal content including text documents, images, and structured data, providing comprehensive support across diverse customer inquiry types.

### 3. Autonomous Sentiment and Escalation Logic

A key differentiator of this agentic solution is its advanced, autonomous sentiment detection and escalation logic.

The Strands Agent Lambda continuously monitors customer interactions in real-time, identifying markers of frustration, anger, or explicit requests for human assistance. When escalation criteria are met, the agent autonomously executes a seamless handoff to the human agent queue, passing the full conversation context to ensure a smooth transition.

This intelligent routing ensures that routine queries are resolved through efficient AI automation, while complex issues requiring human empathy and sophisticated problem-solving are prioritized for experienced agents.

#### **4. Agent Workspace - Widget (CCP Widget)**

To empower human agents, Nova developed a specialized AI Widget integrated directly into the Amazon Connect Agent Workspace, serving as an intelligent copilot.

This widget delivers real-time AI assistance powered by AgentFlowKB, a dedicated knowledge base. Leveraging Anthropic Claude 3.5 Sonnet, it handles high-complexity reasoning tasks—such as technical troubleshooting and detailed policy analysis—utilizing an advanced context window to support human agents instantly.

Agents can perform Manual Knowledge Retrieval by querying the knowledge base through an API Gateway endpoint to receive instant, AI-summarized answers from technical manuals during live customer interactions.

This capability significantly accelerates problem resolution and reduces search times while maintaining high service quality.

To safeguard sensitive brand data, the widget implements a robust Authentication and Security layer using a secure JWT (JSON Web Token) architecture, validated by a Lambda authorizer to ensure that only authorized personnel can access the information.

## Best Features

- **Intelligent Brand Customization**
- **Dual Knowledge Architecture**
- **Seamless Integration**
- **Multi-Channel Support**
- **Real-Time Agent Assistance**

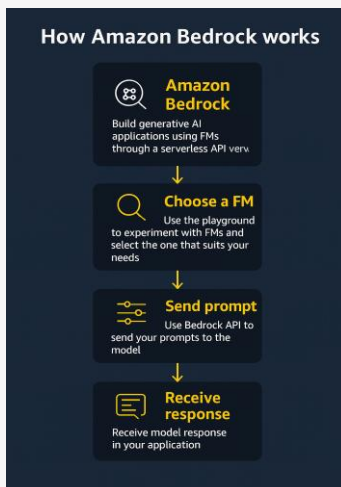


Figure 3 - How Amazon Bedrock works

## Results and Benefits

The implementation of the Agentic AI framework has delivered transformative results, validated by two primary Key Performance Indicators (KPIs):

### KPI 1:

**Customer Wait Time Reduction:** From a critical baseline of 43–80 minutes, wait times were reduced to near-instantaneous responses (less than 1 minute)

This represents a near 99% improvement in accessibility across voice and WhatsApp channels.

### KPI 2:

**Interaction Efficiency:** Previous manual searches caused interactions to last 25–30 minutes. By utilizing autonomous knowledge retrieval, routine inquiries (approximately 70% of volume) are now resolved in real-time, significantly lowering the average handle time (AHT).

### Autonomous Reasoning and Handoff

Beyond simple automation, the Strands Agent SDK allows the system to act with autonomous reasoning and planning. The agent identifies customer intent and executes tools for validation or line checks without human intervention. When the agent's real-time sentiment analysis detects frustration or complex emotional needs, it triggers a seamless, context-aware handoff to a human agent, ensuring high-value interactions receive the necessary empathy.

### Personalized Multi-Brand Experience

The solution provides sophisticated multi-brand orchestration for the Diri, Pillofon, and Turbocel brands within a single infrastructure.

Using brand-specific system prompts, the Agentic AI ensures that every interaction perfectly captures each brand's unique personality and business logic. This provides contextually appropriate 24/7 support across Mexico, Colombia, and Peru, regardless of time zones.

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### **Operational Excellence and Agent Empowerment**

Operational excellence has been achieved by implementing an Autonomous Agentic Core that serves as the central orchestration layer for Diri's contact center.

This intelligent agent, hosted on AWS Lambda and utilizing the Strands Agent SDK, autonomously plans and executes complex workflows, including multi-brand reasoning, tool execution, and real-time customer validations.

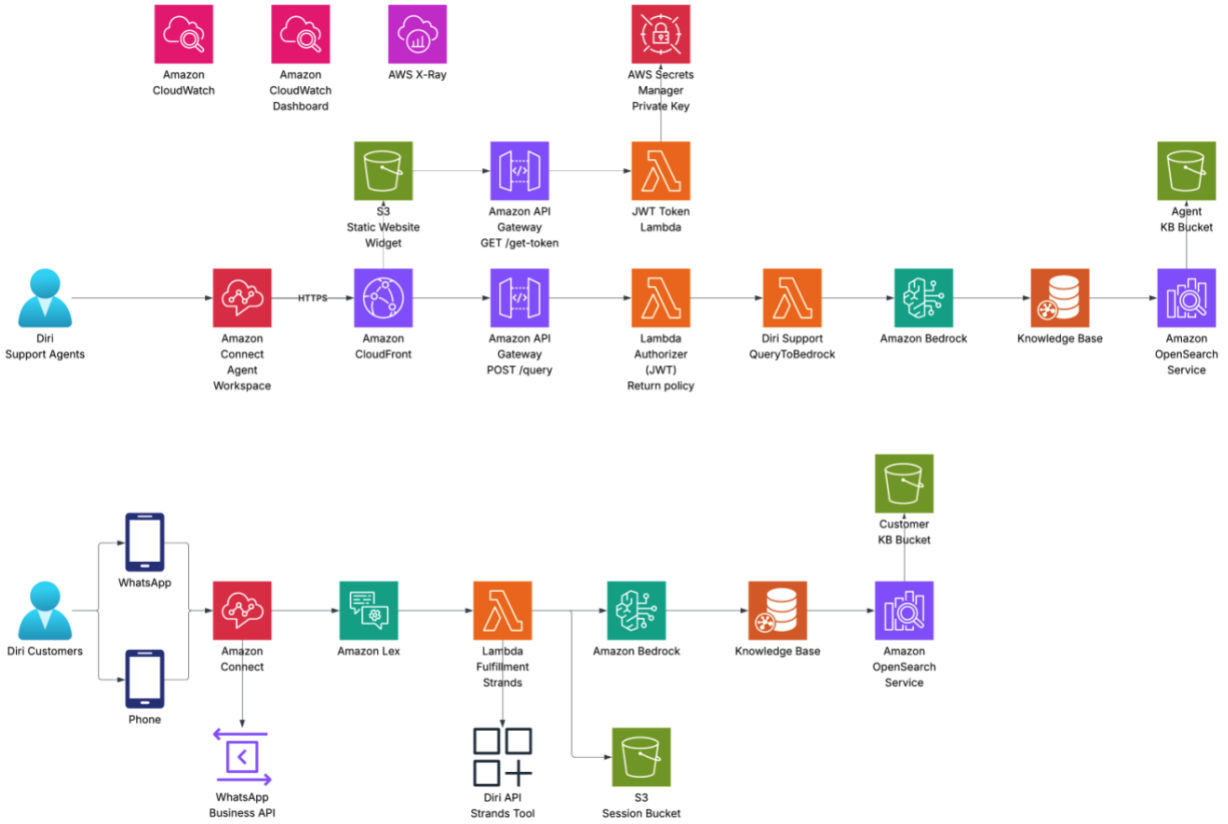
By delegating routine logic and autonomous retrievals to this agentic orchestrator, the human workforce is empowered to focus on high-stakes customer interactions that necessitate empathy and creative problem-solving. This strategic allocation of tasks ensures superior service quality while the serverless architecture—built on Amazon Bedrock and Amazon OpenSearch Serverless—minimizes operational costs by automatically scaling infrastructure to meet real-time demand, effectively eliminating over-provisioning.

### **Strategic Innovation and Agentic Leadership**

This project positions Diri as a technology leader in the telecommunications industry, demonstrating the first production-scale deployment of Agentic AI for a Mexican MVNO.

The modular architecture, utilizing AWS Lambda and Bedrock, provides a future-proof foundation for expanding agentic capabilities, such as advanced predictive analytics and cross-agent coordination.

# Diri's Contact Center Agentic AI Solution Architecture



## Next Steps

As Diri, Turbocel, and Pillofon maintain unique approaches to customer interaction, the roadmap prioritizes deepening brand-specific intelligence, technical extensibility, and real-time knowledge agility.

### 1. Advanced Prompt Engineering and Brand Orchestration

Future efforts will focus on refining system prompts for each brand to integrate deeper business logic, ensuring that AI responses perfectly capture the unique interaction style of Diri, Pillofon, and Turbocel. By utilizing Chain-of-Thought (CoT) prompting within the Strands Agent SDK, the system will be empowered to handle increasingly complex reasoning tasks.

This ensures that all autonomous decisions—from customer validation to technical support—remain perfectly aligned with each brand’s specific identity and service policies.

### 2. Scalability for Emerging Brands

The current multi-brand architecture was intentionally built for high extensibility.

A primary next step involves the seamless onboarding of new telecommunications brands as they emerge. This expansion will leverage the existing serverless infrastructure and modular Knowledge Base design, allowing Diri to scale its intelligent support capabilities across new market segments without disrupting core production operations.



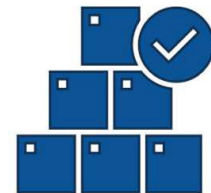
#### AI-Powered Automation

The solution leverages Amazon Bedrock’s foundation models and Amazon Connect’s contact flows to automatically handle customer inquiries, reducing the long 43-80 minutes wait times.



#### Intelligent Escalation

Advanced sentiment detection and customer intent analysis ensures seamless handoff to human agents when complex issues require personal attention and empathy.



#### Serverless Scalability

The AWS serverless architecture provides cost-effective, event-driven processing that scales automatically with call volumes while maintaining consistent performance.

### About Nova



Nova is a company specializing in Information Technology Consultancy Services. All our team members have one thing in common: our enthusiasm for technology and our passion for customer service excellence. We provide services in all North America, LATAM and Europe. Our headquarters are in NYC metropolitan area, and we also have offices in Guadalajara, Mexico and Madrid, Spain.